



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,844	04/02/2004	Christophe Le Troadec	250962US3X	9690
22850	7590	10/27/2006	EXAMINER	
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			ESHETE, ZELALEM	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,844

Applicant(s)

LE TROADEC ET AL.

Examiner

Zelalem Eshete

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/7/2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-17,20,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breuer et al. (5,101,554) in view of Fujii et al. (5,987,973).

Regarding claims 1,8,14,20,21: Breuer disclose a camshaft for an engine or an engine including a camshaft (see figure 1c), said camshaft comprising a support shaft carrying in the region thereof a camshaft element for co-rotation therewith (see numerals 1,2a,2b), said camshaft element being captured on said support shaft by "a

head of a rivet formed from" plastic deformation of said end of said support shaft (see figure 1c; column 6, lines 30 to 35). Breuer further discloses said "rivet head" is formed from a deformation zone of said support shaft (see figure 1c; column 6, lines 30 to 35). Breuer further teaches said rivet head is formed from a deformation zone of said support shaft, which deformation zone overhangs said camshaft element when said camshaft element is in place (see figure 1b).

Breuer fails to disclose a support shaft carrying in the region of one end thereof and deformation zone overhangs said camshaft element when said camshaft element is in place and its arrangement.

Fujii teaches a cam element on a support shaft carrying in the region of one end thereof (see figure 6). Fujii teaches such arrangement for camshaft angle sensor realization (see numeral 32e). Fujii further teaches "overhangs" said camshaft element when said camshaft element is in place (see numeral 35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to extend element attachments on the camshaft as taught by Breuer by providing cam element at the end thereof as taught by Fujii in order to pick up the camshaft angle signal as taught by Fujii.

As to the method of riveting, a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983)

Regarding claim 15: Breuer disclose a method of producing a camshaft for an engine (see figure 1a,1b,1c), the method including: (a) providing a support shaft adapted to support a camshaft element (see numeral 1) (b) providing on said portion a camshaft element for co-rotation with said support shaft (see numeral 2a,2b,2); and (c) capturing said camshaft element onto said support shaft by plastically deforming a deformation zone of said end portion into a radially extending rivet head that extends radially outward beyond a sidewall defining an opening in the camshaft element through which said end of said support shaft is configured to be disposed (see figure 1c).

Breuer fails to disclose a support shaft carrying in the region of one end thereof.

Fujii teaches a cam element on a support shaft carrying in the region of one end thereof (see figure 6). Fujii teaches such arrangement for camshaft angle sensor realization (see numeral 32e).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to element attachments of the camshaft as taught by Breuer by providing cam element at the end thereof as taught by Fujii in order to pick up the camshaft angle signal as taught by Fujii.

Regarding claims 2,16: Fujii discloses providing a hollow portion defined in said camshaft; said support shaft includes a hollow portion extending inwardly from said end (see figure 6).

Regarding claim 3,17: Breuer discloses said support shaft comprises a tube or using a tube for said support shaft (see figure 1c).

Regarding claim 3,17: Fujii discloses said support shaft comprises a tube or using a tube for said support shaft (see figure 6).

Regarding claims 4-7: As to the manufacturing processes, a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983).

Regarding claim 9: Breuer as modified above discloses a hollow rim at said end (see figure 1c).

Regarding claim 10: Fujii discloses the camshaft element comprises a rotation sensor target member (see figure 6).

Regarding claim 11: Fujii discloses said camshaft element comprises a substantially planar target member (see figure 6).

Regarding claim 12: Fujii discloses said camshaft element comprises a drive member configured to transfer rotational drive to or from said camshaft (see figure 3).

Regarding claim 13: Fujii discloses said camshaft element is formed from a sheet or plate material (see figure 6).

4. Claim 18,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breuer in view of Fujii as applied to claim 15 above, and further in view of Cooper (4,512,441).

Breuer as modified above discloses the claimed invention; however fails to disclose using radial cold flow forming technique or an orbital or daisy riveting technique.

However Cooper teaches using radial cold flow forming technique or an orbital or daisy riveting technique and using such technique has the advantage of avoiding cracking (see column 10, lines 46 to 60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Breuer as modified above by using the techniques as taught by Cooper in order to avoid cracking as taught by Cooper.

Response to Arguments

5. Applicant's arguments with respect to claims 1,15,20 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's arguments filed 8/7/2006 have been fully considered but they are not persuasive.

7. With respect to applicant's argument on pages 6/7: Breuer discloses the operation of plastic deformation that results in the apparatus (though not using rivets) that reads on the claim limitations. As to the method of riveting, a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983)

Additionally, as to the method claim 15: Breuer discloses the claim limitation "rivet head" as interpreted in light of the dependent claim 8, that states "said rivet head is formed from a deformation zone of said support shaft, which deformation zone overhands said camshaft element when said camshaft element is in place" (see figure 1b).

8. With respect to applicants' argument on page 7,8: In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this instance, Breuer discloses multiple cam elements attachment onto a camshaft (see figure 1c). The secondary reference is relied in its teaching to attach a sensor cam element at the END of a shaft.

It would have been obvious to extend the can element attachments of Breuer by providing the sensor cam element attachment at the end for the camshaft in order to reduce the manufacturing cost by using a single camshaft elements attachment method in addition to the expressed motivation the secondary reference provides for using the sensor cam element.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete
Examiner
Art Unit 3748

A handwritten signature in black ink, appearing to read 'Zelalem Eshete', written in a cursive style.